

Case Report:

Handlebar hernia: A rare case of post-traumatic anterior abdominal wall hernia.

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Abstract

Handlebar hernias are abdominal wall hernias resulting from direct trauma to the anterior abdominal wall and also called as Traumatic abdominal wall hernias (TAWHs). They usually occur at weak anatomic locations of the abdominal wall .The associated intra-abdominal injuries are infrequent. . Such traumatic hernias are rare. We report this case of a handlebar hernia resulting from an injury sustained by bicycle handle with a history of fall, and discuss the management of such injuries.

Keywords: Traumatic abdominal wall hernias (TAWHs), blunt abdominal trauma.

Introduction

Abdominal wall hernias caused by direct trauma from handlebar-like objects, are called “handlebar hernias” , and are a rare occurrence. Handlebar hernia is an example of posttraumatic hernia .^[1]Blunt traumatic abdominal hernia is defined as a herniation through disrupted musculature and fascia, without skin penetration and with no evidence of a prior hernial defect at the site of injury .^[2]The increased abdominal pressure and shearing forces cause a likely disruption of the abdominal wall muscles and fasciae. Although the skin can be bruised, it normally remains intact .^[3]Contrast-enhanced computed tomogram (CECT) and ultrasonography (USG) can be used to evaluate the associated intra-abdominal injuries. Early surgical repair is necessary for definitive treatment. TAWH as a rare entity has a confusing clinical picture. Such hernias, if missed, can result in high morbidity and may prove fatal.

Case report

A 17 year old boy presented with history of fall from bicycle 4 days back sustained handle injury in right lower abdomen. He complained of pain and bulge after coughing and sneezing at the site of injury. On examination vitals were normal. Abdominal examination revealed a small abrasion of 2 cm size [fig 1] with underlying oblique defect of 4 fingers in right iliac fossa. USG of abdomen and pelvis suggested a traumatic hernia in the anterior abdominal wall with herniation of caecum through the defect . The laboratory investigations were within normal limits.

Exploration was done with oblique incision centered over the site of injury. There was a defect of approximately 10 × 4 cm involving all the layers of the anterior abdominal wall muscles in the right iliac fossa with intact skin. Lacerated muscles were present at the edges of the defect [fig 2]. No other intraabdominal injuries were

found. The abdominal wall defect was repaired in layers. The muscular and fascial defects were closed in anatomic layers. The abdominal incision was closed in a standard manner. Postoperative course was uneventful. Follow up after 6 months showed no evidence of recurrence.

Discussion

Herniation is a rare occurrence following blunt abdominal trauma. The pathophysiology of TAWH involves the application of a blunt force to the abdomen over an area large enough to prevent penetration of the skin. The tangential forces result in a pressure-induced disruption of the abdominal wall muscles and fascia, allowing subcutaneous herniation of abdominal viscera through the defect.^[4] As the skin is more elastic than the other layers of the abdominal wall, it remains intact even though the underlying musculature and fascia are disrupted which gives rise to TAWH.^[5] Associated intra-abdominal injuries are infrequent.

There are three major types of traumatic abdominal wall hernias based on the mechanism of injury and the size of the defect. Type I abdominal wall hernia involves a small defect caused by blunt trauma. Type II hernia is a larger defect developed during the high-energy transfer events such as motor vehicle crash or fall from a height. Type III hernias are those defects that involves intraabdominal bowel herniation that has been described for deceleration injuries.^[6] Handlebar hernias often fall under type I abdominal wall hernias and associated intraabdominal injuries are rare as seen in our case.^[7,8] In few cases, the hernia was caused by high-energy motor-car accident.^[9] These cases have been reported with significant

intraabdominal injury. The most commonly reported injuries were mesenteric and serosal tears. There are two possible mechanisms of blunt mesenteric injuries: (1) a crushing force applied to the bowel against the spine and (2) shearing forces of the bowel and mesentery along the lines of attachment.^[7] The diagnosis is usually made on the basis of history and physical examination. However, ultrasonography and CT scans may be helpful in difficult cases.^[10,11] Prompt surgery is required to avoid the complications such as incarceration or strangulation and subsequent morbidity. The incision should be taken directly over the traumatic swelling for proper exposure of the herniated contents and defect.^[12,13]

The repair of small defects with clear borders is straightforward. Primary approximation of the traumatic defect can be done by nonabsorbable sutures with or without mesh repair, as most case reports indicate. Mesh repair is contraindicated in contaminated wall defects, because of the high risk of mesh infection.

Conclusion

A high level of clinical suspicion is required to diagnose TAWH in cases of abdominal wall injury. Such patients should be examined and treated promptly for the possibility of significant intra-abdominal injury. If all the indicators of intraabdominal injury are negative, local wound exploration provides the best anatomic layered repair with subsequent minimal residual defect and improved long-term cosmesis.

Fig 1 : Small abrasion in right iliac fossa.



Fig 2 : Defect of approximately 10 × 4 cm involving all the layers of the anterior abdominal wall with Lacerated muscles were present at the edges of the defect.



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